

CF Standard Name Interoperability Past, Present and Future

Roy Lowry (BODC)

Adam Leadbetter (Irish Marine Institute)

Objective

- * Coming from the perspective of SeaDataNet
 - * European distributed data system
 - * 3,000,000 data objects (e.g. CTD profiles) available on-line
 - * Workstream aggregating data into products required by EU Marine Strategy Framework Directive (EMODNet)
 - * Improved data coverage always required
 - * Automation is the name of the game
 - * CF seen as a low-hanging fruit, especially as NOAA OCL World Ocean Database adopted CF 1.6

Status 2008

- * GO-ESSP Seattle
 - * File format interoperability issues
 - * CF NetCDF focussed on gridded data
 - * SeaDataNet point data in ASCII files
 - * Semantic interoperability issues
 - * Different parameter vocabularies
 - * CF Standard Names
 - * BODC Parameter Markup Vocabulary (PMV)
 - * Philosophical differences
 - * Dimension mismatch
 - * Standard Name defines dimension
 - * SeaDataNet needs parameter + UoM to define dimension
 - * Common Concept issue (2m air temperature and radiation spectra)

Status 2008

- * Linked Data Approach through NERC Vocabulary Server V1
 - * Standard Name and BODC Parameter Markup Vocabulary concepts represented by URLs
 - * URLs resolved to machine-readable XML documents
 - * Described the concept
 - * Described relationship between the concept and other concepts that were also represented by URLs

Status 2008

- * Operational experience with NVS V1 exposed a number of issues
 - * Multiple URIs for a single concept
 - * Standard Name deprecation caused the URI to change (SDN:P071:12:CF12N211 to SDN:P072:13:CF12N211)
 - * Opaque identifiers in Standard Name URIs (CF12N211) not popular
 - * Misguided version management principle
 - * Concept inherits version of its container
 - * Based on immature SKOS standard

Status 2012

- * File format interoperability issue addressed
 - * CF 1.6 for point data published late 2011
 - * SeaDataNet NetCDF format based on CF 1.6 published September 2012
- * Semantic interoperability progress
 - * NERC Vocabulary Server V2 live December 2012
 - * CF clean URLs including Standard Name (e.g. http://vocab.nerc.ac.uk/standard_name/sea_water_temperature/)
 - * SPARQL end-point (<http://vocab.nerc.ac.uk/sparql/>)

Status 2012

- * Semantic Interoperability Progress
 - * NVS V2 URL resolves to an XML document
 - * Scope is a single Standard Name
 - * Standards-conformant
 - * Accepted SKOS
 - * RDF XML
 - * Concept-based versioning
 - * Information includes
 - * Labels (name and definition)
 - * Status (accepted or deprecated)
 - * Mappings
 - * Canonical Names
 - * SeaDataNet Parameter Discovery Vocabulary
 - * Two versions of GCMD Science Keywords
 - * Replacement Standard Names for deprecates

Status 2015

- * Issues not addressed
 - * Clean URL namespace should be CF domain, not NERC
 - * Philosophical differences not addressed
 - * The curse of the 'common concept' Trac ticket
 - * Initial meeting in Hamburg a long time ago
 - * Planned work abandoned in 2012 when Olly Clements left BODC and not replaced
 - * Planned work put on hold in 2015 when Adam Leadbetter left BODC (recruitment in progress)

Status 2015

- * Ocean Data Interoperability Platform (ODIP)
 - * Objective is to develop interoperability between European, US and Australian oceanographic data
 - * European participation funded by EU
 - * US participation funded by NSF
 - * Australian funding primarily through IMOS but other contributors such as CSIRO
 - * EU funding was due to finish in September 2015, but success of an ODIP2 follow-on proposal just announced

Status 2015

- * ODIP parameter semantics
 - * Work to date has focussed on semantic data aggregation and automated UoM harmonisation
 - * Contaminant (e.g. Pb) in shellfish is automatically built from:
 - * Data marked up at species level (Concentration of lead per unit dry weight of biota {Mytilus edulis [subcomponent: flesh]})
 - * UoMs that are a mixture of masses and moles
 - * Developed to the stage where aggregation is based on merging compatible parameters
 - * Looking how to extend aggregation to incorporate automated simple arithmetic (e.g. DDT from oDDT and pDDT)

Status 2015

- * ODIP parameter semantics
 - * Semantic interoperability between SeaDataNet and Standard Names required to facilitate:
 - * Automatic Standard Name population when generating NetCDF from data marked up using BODC Parameter Markup Vocabulary
 - * Automated aggregation of vanilla CF 1.6 into SeaDataNet data products

Status 2015

- * ODIP parameter semantics
 - * Working to expose BODC Parameter Markup Vocabulary semantic model in machine-readable form (RDF XML)
 - * Could be mapped to Jonathan Gregory's Standard Name semantic model
 - * Much less work than mapping concepts
 - * INSPIRE Complex Properties extension to ISO19156 (O&M) Observable Property model provides a possible mapping tool
 - * Looking for an RDF-based solution for resolving philosophical differences

That's All Folks

- * Thank you for your attention
- * Questions?